Abstract

A microscope capable of being shaped into a beam with complete hollow shape by removing the disorder of the wavefront to the erase light, particularly, and capable of improving the spatial resolution by inducing a super-resolution near the limit, is provided. In the microscope, wherein a first light to excite a molecule from a ground-state to first electron excited state or a second light to excite the molecule from the first electron excited state to the second electron excited state with higher energy level, for a sample 56 including the molecule with three electronic states including at least a ground-state, are spatial phase-modulated into the prescribed beam shape, and parts of these first light and the second light are overlapped and focused to detect luminescence from the sample 56, a wavefront compensation means 61 is provided in the optical path of the first light and/or in the optical path of the second light, and the wavefront aberration caused in the first light and/or in the second light, is removed by the wavefront compensation means 61.